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Pesticide and Plant Pest Management Division Mycotoxins in Michigan Animal Feeds Update

The Michigan Department of Agriculture (MDA) Pesticide and Plant Pest Management Division regulates the feed industry by monitoring feed production and sanitation and by collecting and analyzing commercial feed products. Feed samples are analyzed by the MDA Laboratory Division to ensure products meet label guarantees and to further test for feed contaminants such as mycotoxins. Current feed sampling efforts have identified the increased presence of mycotoxins and decreased values of protein in Michigan animal feeds. These product quality issues are likely attributed to the delayed corn harvest and wet weather last fall.

Vomitoxin (also known as deoxynivalenol or DON) appears to be the predominant mycotoxin affecting corn this year. A variety of animal health risks are associated with livestock consumption of mycotoxin contaminated feed. The United States Food and Drug Administration (FDA) has established advisory levels for vomitoxin and recommends the following:

- 10 parts per million (ppm) vomitoxin on grains and grain by-products destined for ruminating beef and feedlot cattle older than four months and for chickens with the added recommendation that these ingredients not exceed 50 percent of the diet of cattle or chickens.
- Five ppm vomitoxin on grains and grain by-products destined for swine with the added recommendation that these ingredients not exceed 20 percent of their diet.
- Five ppm vomitoxin on grains and grain by-products destined for all other animals with the added recommendation that these ingredients not exceed 40 percent of their diet.

Swine are especially susceptible to elevated vomitoxin levels. The primary health effect observed in swine may be reduced feed consumption with vomitoxin levels as low as 1 ppm.

Over a third of the samples analyzed for mycotoxins to date, have had detectable levels of vomitoxin, with about five percent exceeding 5 ppm. Additionally, of the grains tested for aflatoxin, only one has exceeded 1 part per billion (ppb). Early results from zearalenone testing have found one sample exceeding 1,000 ppb. MDA will continue testing commercial feeds and corn for vomitoxin and zearalenone.

There are two strategies commonly implemented in the feed industry that attempt to address mycotoxin contaminated grains. One strategy is to blend contaminated grains with clean grains, thereby effectively diluting the mycotoxin concentration to within acceptable limits. Dilution may be a common practice, however, the deliberate mixing of adulterated grain with clean grain renders the finished product "adulterated" under the Federal Food Drug and Cosmetic Act and is not approved by FDA.

Another strategy is to add FDA approved ingredients, such as anti-caking agents or yeast products. These are often commonly referred to as mycotoxin binding agents or mycotoxin neutralizers. Here again, FDA has established the position that these ingredients, when mixed at unapproved rates, are not recognized as safe. The underlying concern is that these

ingredients do not bind all mycotoxins equally, and that those mycotoxins, which may be bound, will not remain so when consumed by the animal, and therefore, could pose an undue risk to the animal's health.

MDA Pesticide and Plant Pest Management Division will continue to sample commercial animal feed and investigate violative results. MDA is working with FDA and Michigan State University, Animal Science experts to monitor the livestock feed supply and distribute current information regarding feed quality and feeding practices.

For questions regarding feeding recommendations, please consult with your Michigan State University Extension Agent. Mycotoxin guidance documents and a feed sample summary are available at MDA's feed program website: www.michigan.gov/mda-feed